

WHAT IS CLAIMED:

1. A flexible intravascular stent for use in a body lumen, comprising:
a plurality of cylindrical rings aligned along a common longitudinal axis and interconnected to form the stent, each cylindrical ring having a first
5 delivery diameter and a second implanted diameter;
each cylindrical ring having a plurality of first peaks and second peaks, each of the peaks having a height, the second peaks being shorter than the first peaks;
at least one undulating link attaching each cylindrical ring to an
10 adjacent cylindrical ring, the undulating links having a curved portion extending transverse to the stent longitudinal axis toward the second peak, the height of the second peak being sized so that as the stent is compressed to the first delivery diameter, the curved portion is positioned proximal to the second peak;
wherein a plurality of inverted cylindrical end rings are coupled at
15 least in part to a plurality of adjacent cylindrical rings on at least one of a proximal end and a distal end of the stent.
2. The stent of claim 1, wherein the stent is formed from a tube.
3. The stent of claim 1, wherein the stent is formed from a flat sheet.
4. The stent of claim 1, wherein the stent is formed from a metal alloy.
- 20 5. The stent of claim 4, wherein the stent is formed from any of the group of metal alloys consisting of stainless steel, tantalum, nickel-titanium, cobalt-chromium and titanium.

6. The stent of claim 1, wherein the stent is formed from a shape memory alloy.

7. The stent of claim 6, wherein the stent is formed from the group of shape memory alloys consisting of nickel-titanium and nickel-titanium-vanadium.

5 8. The stent of claim 1, wherein the stent is formed from a superelastic or pseudoelastic metal alloy.

9. The stent of claim 8, wherein the stent is formed from the group of superelastic or pseudoelastic metal alloys consisting of nickel-titanium and nickel-titanium-vanadium.

10 10. The stent of claim 1, wherein at least a portion of the stent has a variable thickness configuration.

11. The stent of claim 1, wherein at least a portion of the inverted cylindrical end rings has a variable thickness configuration.

12. The stent of claim 1, wherein at least a portion of the undulating links
15 has a variable thickness configuration.

13. The stent of claim 1, wherein at least a portion of the cylindrical rings has a variable thickness configuration.

14. The stent of claim 1, wherein at least a portion of the stent is coated with a therapeutic drug.

15. The stent of claim 14, wherein at least a portion of the inverted cylindrical end rings includes at least one of a plurality of microdepots and a plurality of microchannels for accepting the therapeutic drug and storing therein.

16. The stent of claim 1, wherein the plurality of inverted cylindrical end rings extend beyond a balloon catheter working length while being in an expanded diameter.

17. The stent of claim 1, wherein the plurality of inverted cylindrical end rings yield a negative stent-to-shoulder distance.

18. The stent of claim 17, wherein the negative stent-to-shoulder distance is about -0.3 mm.

19. The stent of claim 1, wherein the plurality of inverted cylindrical end rings are configured to completely expand.

20. The stent of claim 19, wherein the plurality of inverted cylindrical end rings are configured to completely expand at about 95% up to about 100% of the inside diameter of the stent.

21. The stent of claim 1, wherein the plurality of inverted cylindrical end rings have a strut thickness ranging from about 0.0024 inch (0.0610 mm) up to about 0.0034 inch (0.0864 mm).

22. The stent of claim 1, wherein the plurality of inverted cylindrical end rings have a strut width ranging from about 0.0024 inch (0.0610 mm) up to about 0.0034 inch (0.0864 mm).

23. The stent of claim 1, wherein the plurality of inverted cylindrical end rings are coupled at least in part to a plurality of adjacent cylindrical rings by laser cutting a stent pattern into a tube.

24. The stent of claim 1, wherein the plurality of inverted cylindrical end rings are configured to assume an undulated shape.

25. The stent of claim 1, wherein at least one inverted cylindrical end ring is a mirror image of at least one corresponding adjacent cylindrical ring such that a symmetrical configuration is present on at least one of the proximal end and the distal end of the stent.

26. A flexible intravascular stent for implanting in a body lumen, comprising:

a plurality of cylindrical rings interconnected to form the stent, each cylindrical ring having a delivery diameter and an expanded diameter;

each cylindrical ring having a proximal end and a distal end and a cylindrical wall extending circumferentially between the proximal end and the distal end of the cylindrical ring;

at least one undulating link attaching each cylindrical ring to an adjacent cylindrical ring, the undulating links being positioned substantially within the cylindrical wall of the cylindrical ring;

wherein a plurality of inverted cylindrical end rings are coupled at
5 least in part to a plurality of adjacent cylindrical rings on at least one of a proximal end and a distal end of the stent.

27. A flexible intravascular stent for use in a body lumen, comprising:
a plurality of cylindrical rings aligned along a common longitudinal
axis and interconnected to form the stent, each cylindrical ring having a first
10 delivery diameter and a second implanted diameter;

each cylindrical ring having a plurality of first peaks and second
peaks, each of the peaks having a height, the second peaks being shorter than the
first peaks;

at least one undulating link attaching each cylindrical ring to an
15 adjacent cylindrical ring, the undulating links having a curved portion extending
transverse to the stent longitudinal axis toward the second peak, the height of the
second peak being sized so that as the stent is compressed to the first delivery
diameter, the curved portion is positioned proximal to the second peak;

wherein a plurality of inverted cylindrical end rings are coupled at
20 least in part to a plurality of adjacent cylindrical rings on at least one of a proximal
end and a distal end of the stent, at least one inverted cylindrical end ring being a
mirror image of at least one corresponding adjacent cylindrical ring such that a
symmetrical configuration is present on at least one of the proximal end and the
distal end of the stent.

25 28. The stent of claim 27, wherein the symmetrical configuration is
present on at least one of the proximal end and the distal end of the stent when the

first peaks of the inverted cylindrical end rings and the adjacent cylindrical rings are coupled at least in part to each other in the form of a mirror image.

29. The stent of claim 27, wherein the symmetrical configuration is present on at least one of the proximal end and the distal end of the stent when the
5 second peaks of the inverted cylindrical end rings and the adjacent cylindrical rings are coupled at least in part to each other in the form of a mirror image.

30. The stent of claim 27, wherein the symmetrical configuration is present on both the proximal end and the distal end of the stent.

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31. A flexible intravascular stent for implanting in a body lumen, comprising:

a plurality of cylindrical rings interconnected to form the stent, each cylindrical ring having a delivery diameter and an expanded diameter;

15 each cylindrical ring having a proximal end and a distal end and a cylindrical wall extending circumferentially between the proximal end and the distal end of the cylindrical ring;

at least one undulating link attaching each cylindrical ring to an adjacent cylindrical ring, the undulating links being positioned substantially within
20 the cylindrical wall of the cylindrical ring; and

means for forming a plurality of inverted cylindrical end rings interconnected with a plurality of adjacent cylindrical rings at both a proximal end and a distal end of the stent, each inverted cylindrical end ring being a mirror image of each corresponding adjacent cylindrical ring such that a symmetrical
25 configuration is present at both the proximal end and the distal end of the stent.